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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,816	09/22/2008	Kirsten Povel	06088	6264
23338	7590	06/14/2011	EXAMINER	
DENNISON, SCHULTZ & MACDONALD			KUNDU, SUJOY K	
1727 KING STREET				
SUITE 105			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22314			2857	
			MAIL DATE	DELIVERY MODE
			06/14/2011	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/585,816	POVEL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	SUJOY KUNDU	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 12 July 2006.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-9 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-9 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 16 July 2006 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>09/17/2008</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

### ***Drawings***

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings are not legible. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### ***Specification***

Specification reads, "This application is a filing under 35 USC 371 of PCT/EP2005/000319, filed January 14, 2005." The application should be amended to the following: "This is a U.S. national phase application of PCT/EP2005/000319, filed January 14, 2005, which claims priority to German Application No. DE 10 2004 002 929.6, filed January 14, 2004. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1 is directed towards a method for determining the color effect of dispersive materials such as materials or biological substances of a multilayer system, in particular a series of layers in teeth or dental materials, the claim does not seem to be

tied to a particular machine or transform a particular article (In re Bilski, F.3d (Fed. Cir. 2008) (en banc)).

As explained in the Interim Guidelines, the first step in determining whether a claim recites patent eligible subject matter is to determine whether the claim falls within one of the four statutory categories of invention recited in 35 USC 101: process, machine, manufacture, and composition of matter. The latter three categories define "things" or "products," while a "process" consists of a series of steps or acts to be performed. For purposes of 35 USC 101, a "process" has been given a specialized, limited meaning by the courts.

Based on recent Federal Circuit decisions, a 35 USC 101 process must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state of thing. If neither of these requirements is met by the claim, the method is not a patent eligible process under 35 USC 101, therefore claim 1 is directed towards nonstatutory subject matter.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1- are rejected under 35 U.S.C. 102(b) as being anticipated by Shimada et al. (Melanin and blood concentrations in a human skin model studied by multiple regression analysis: assessment by Monte Carlo simulation").

With regards to Claim 1, Shimada teaches a method for determining the color effect of dispersive materials such as materials or biological substances of a multilayer system, in particular a series of layers in teeth or dental materials, wherein the remission of the multilayer system is calculated by means of forward Monte Carlo simulation of intrinsic optical parameters dispersion coefficient  $\mu_s$ , anisotropy factor  $g$  and absorption coefficient of the different materials, calculated by inverse Monte Carlo simulation, taking into consideration refractive index  $n$ , thickness  $d$  of the respective layer of the materials as well as dispersion phase function of the individual materials and the color effect determined from the remission, characterized in that the intrinsic parameters dispersion coefficient  $\mu_s$ , anisotropy factor  $g$  and absorption coefficient of each of the materials are first calculated on the basis of a layer thickness of material enabling transmission of light and that a corrected absorption coefficient  $\mu_{ak}$  is then calculated by inverse Monte Carlo simulation on the basis of the remission of the respective material of an optically dense layer having a thickness  $d_D$ , the corrected absorption coefficient  $\mu_{ak}$  as the absorption coefficient forming the basis for calculating the remission and the color effect of the multilayer system (Page 2397, Abstract, Page 2398-2399, Section 2.2 Monte Carlo simulation and inverse Monte Carlo simulation, (Figure 1, 3, 4).

With regards to Claim 2, Shimada teaches the method which characterized in that the intrinsic optical parameters are determined on the basis of spectrometric measurements (Page 2397, Abstract).

With regards to Claim 3, Shimada teaches the method which characterized in that the intrinsic optical parameters are taken from a data bank (Page 2397, Abstract).

**Note:** Because there are a multitude of complex calculations, it would be inherent that these parameters would be stored in a memory.

With regards to Claim 4, Shimada teaches the method characterized in that the intrinsic optical parameters dispersion coefficient  $\mu_s$ , uncorrected absorption coefficient  $\mu_a$  and anisotropy factor  $g$  of a material are calculated on the basis of macroscopic optical parameters of the material in the form of diffuse remission  $R_d$  as well as diffuse transmission  $T_d$  and/or total transmission  $T_t$  and/or collimated transmission  $T_c$ , taking into consideration the dispersion phase function of the material, thickness  $d$  of a layer of the material used during determination of the macroscopic parameters and refractive index  $n$  of the material by means of inverse Monte Carlo simulation (Page 2397, Abstract, Page 2398-2399, Section 2.2 Monte Carlo simulation and inverse Monte Carlo simulation, (Figure 1, 3, 4)).

With regards to Claim 5, Shimada teaches the method characterized in that the remission of the layer system is calculated for the series of layers consisting of different materials on the basis of the corrected absorption coefficient  $\mu_{ak}$ , the dispersion coefficient  $\mu_s$  and the anisotropy factor  $g$  of each material, taking into consideration at least the dispersion phase function, the refractive index  $n$  and thickness  $d$  of each layer

and series of layers by means of forward Monte Carlo simulation (Page 2397, Abstract, Page 2398-2399, Section 2.2 Monte Carlo simulation and inverse Monte Carlo simulation, (Figure 1, 3, 4).

With regards to Claim 6, Shimada teaches the method characterized in that, when calculating the intrinsic optical parameters by means of the inverse Monte Carlo simulation, measurement parameters and/or measurement geometries from the experimental determination of the macroscopic optical parameters are taken into consideration (Page 2397, Abstract, Page 2398-2399, Section 2.2 Monte Carlo simulation and inverse Monte Carlo simulation, (Figure 1, 3, 4).

With regards to Claim 7, Shimada teaches the method characterized in that the calculation of the color effect from the remission takes place by means of algorithms or multifactor analysis (Page 2397, Abstract, “regression”).

With regards to Claim 8, Shimada teaches the method characterized in that the color effect is calculated taking the geometric extension such as curvature of the layer system into consideration (Figures 1 and 2).

With regards to Claim 9, Shimada teaches the method characterized in that, when using an Ulbricht sphere-type spectrometer as measurement geometry, test geometry, diaphragm diameter, sphere parameter, beam divergence or diameter of a light spot are used as a basis (Page 2397, Abstract).

**Note:** This feature seems to be inherent.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUJOY KUNDU whose telephone number is (571)272-8586. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Schechter can be reached on 571-272-2302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sujoy K Kundu/  
Primary Examiner, Art Unit 2857  
June 9, 2011

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Art Unit: 2857

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